Glance at the quality of Multiple-Choice Questions (One Best Answer, OBA) of Undergraduate medical examinations

Tin Tin Thein, Praneetha Palasuberniam, Aye Aye Wynn, May Zaw Soe, Effandy Mohd Hatta

Background issue

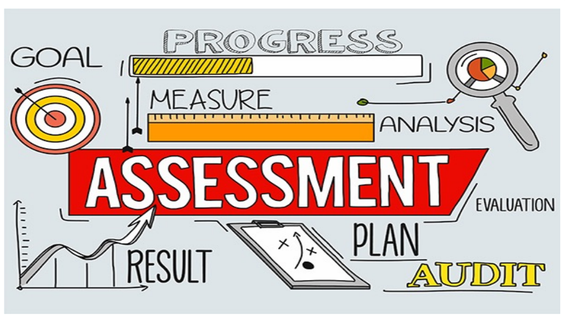
1. **Assessment** plays an important role in helping to interpret the magnitude of a student's ability and their own learning progress (Epstein, 2007), hence an essential component of the medical and nursing course curriculum.

2. Multiple-choice questions (**MCQs**) are commonly used in assessments at undergraduate and postgraduate medical examinations (Kaur et al, 2016). MCQs are efficient, reliable and can be conveniently standardized and it allows for the assessment of higher-order cognitive skills such as interpretation, analytical and critical thinking, application or synthesis in the framework of Bloom's taxonomy (Kumar et al, 2021).

3. However, framing quality MCQs is a challenging task. Hence, **item analysis** is a handy tool for that provides input about validity and reliability of the item.

4. Item analysis involves the process of collecting, summarizing, and using information from student's responses to assess the quality of MCQs.

5. At the Faculty of Medicine & Health Science, item analysis has been conducted on Modified Essay Questions (MEQ), Long Essay Question (LEQ), Objective Structured Practical Examination and Clinical Examination, OSPE and OSCE, respectively. **Item analysis has not been done on MCQs**.



Proposed solution

Workshop on Constructing Quality Item Analysis training in MCQ

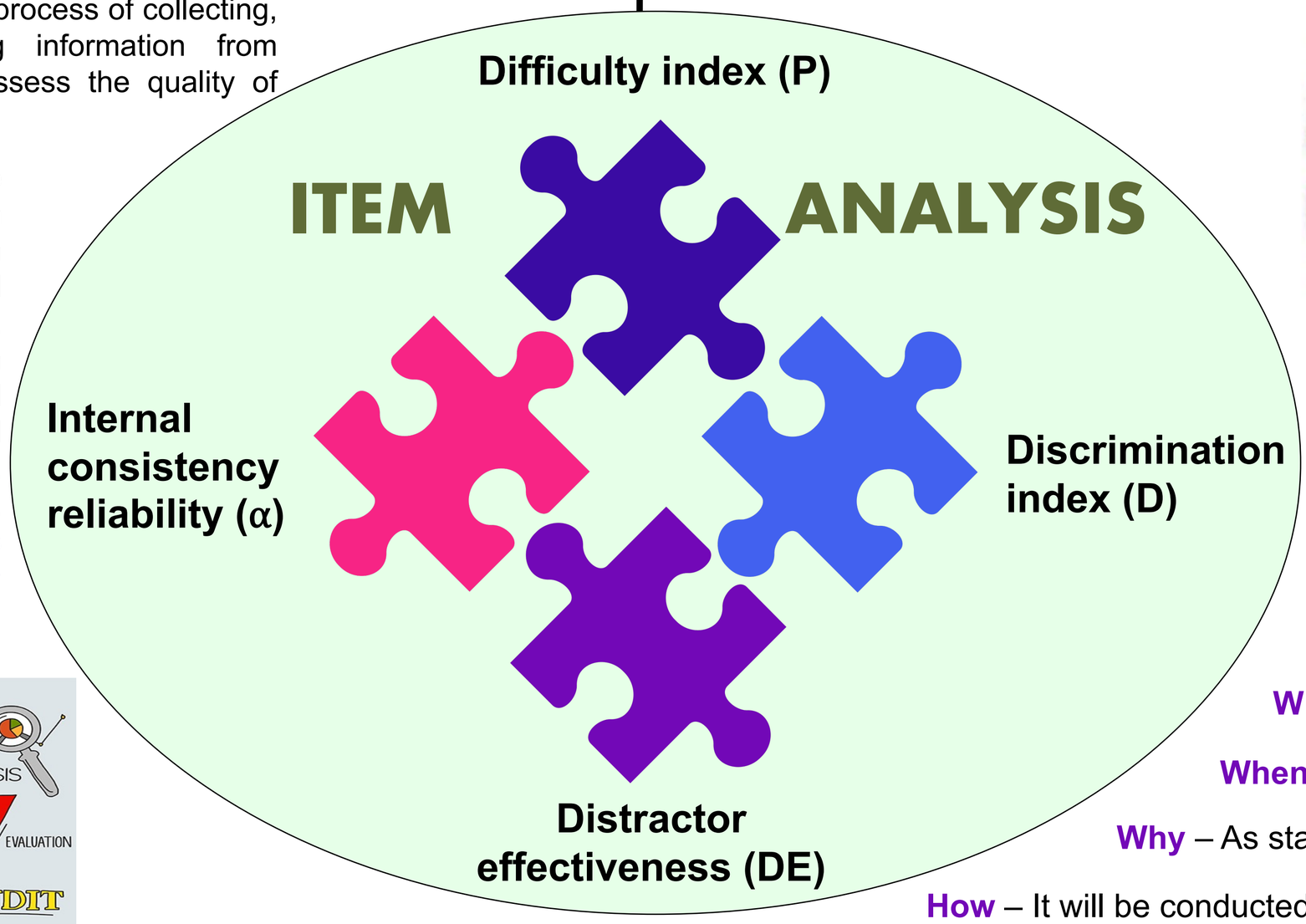
Workshop objectives:

1) To determine **validity** and **reliability** of MCQs.

2) To identify items which can **be revised or discarded**, thus building a quality MCQ bank.

3) To ensure appropriate **difficulty levels.**

4) To discriminate between students of **different performance levels**



What – Item analysis of MCQs

Who – Medical and nursing lecturers

Where – FPSK, UMS

When – Annually

Why – As stated above

How – It will be conducted via a face-to-face training

Explanation of the innovation

The MCQ item analysis consists of:

1) Difficulty index (P): % of students that correctly answered the item

Ideal P: 30% - 60%
P < 30%: students have either **missed the concept** completely or **question is too bad** and need further investigation
P > 90% - item was **very easy** - students can seek from own resources and may not need lectures to elaborate

2) Discrimination index (D): distinguish between high achievers and non-achievers
This tells how the items performed in discriminating the **good versus poor students**.

3) Distractor effectiveness (DE): whether the items are well constructed
To look at the **response frequency** (what responses students are choosing, and **distractors** involved)

4) Internal consistency reliability (α) : how well items are **correlated** to one another. These information can be obtained by scanning the raw data using software for item analysis or can also be calculated manually.

Conclusion

1) Item analysis will help to retain quality MCQs, discard or reframe items which have not been well framed.

2) It will help to build a MCQ question bank comprising 'ideal' MCQs.

References

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